



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/629,469

07/29/2003

Krishna Darbha

END920010115US2

7302

7590

06/28/2004

Schmeiser, Olsen & Watts
3 Lear Jet Lane, Suite 201
Latham, NY 12110

EXAMINER

NGUYEN, DILINH P

ART UNIT

PAPER NUMBER

2814

DATE MAILED: 06/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/629,469

Applicant(s)

DARBHA ET AL.

Examiner

DiLinh Nguyen

Art Unit

2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 April 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 9-11, 13, 21, 23, 25, 26, 28 and 30-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 9-11, 13, 21, 23, 25, 26, 28 and 30-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- 1) ☐ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 9, 11, 13, 21, 23, 25-26, 28 and 31-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fillion et al. (U.S. Pat. 5353498) in view of Nagarajan et al. (U. S. Pat. 6639321).

- Regarding claims 9 and 25, Fillion et al. disclose a semiconductor device comprising :

a substrate 10, wherein the substrate is selected from the group consisting of a ceramic chip carrier, an organic chip carrier (fig. 1a, column 5, lines 16-18);

a semiconductor device 14 electrically coupled to the substrate, wherein the semiconductor device is divided into a plurality of segments, wherein at least one segment of the plurality of segments is not congruent with respect to a remaining segment of the plurality of segments.

Fillion et al. fail to disclose the substrate comprises a coefficient of thermal expansion that is greater than a coefficient of thermal expansion of the semiconductor device.

Nagarajan et al. disclose a semiconductor device (cover fig.) comprising: a substrate 108 comprises a coefficient of thermal expansion that is greater than a

coefficient of thermal expansion of the semiconductor device 202 (column 5, lines 19-23). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Fillion et al. to reduce mismatch of a coefficient of thermal expansion of the die with the substrate, as shown by Nagarajan et al.

- Regarding claims 11 and 28, Fillion et al. disclose a first segment and a second segment of the plurality of segments 14 are congruent with respect to each other (fig. 1a).
- Regarding claims 13 and 31, Fillion et al. disclose the plurality of segments are square segments (fig. 4d).
- Regarding claim 21, Fillion et al. disclose the substrate is symmetrically coupled to each segment of the semiconductor device (fig. 1a).
- Regarding claims 23 and 32, Fillion et al. disclose the semiconductor device is a semiconductor chip (fig. 1a, column 5, lines 23).
- Regarding claim 26, Fillion et al. disclose each segment of the semiconductor device is symmetrically coupled to the substrate (fig. 1a).

3. Claims 10 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fillion et al. (U.S. Pat. 5353498) in view of Nagarajan et al. (U. S. Pat. 6639321) and further in view of Saito et al. (U. S. Pat. 5479335).

Fillion et al. and Nagarajan et al. fail to disclose the length of each segment of the semiconductor device is greater than or equal to 5 millimeters.

Saito et al. disclose a device comprising: a chip size is from a few millimeters square to 20 millimeters square (column 14, lines 9-10). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Fillion et al. and Nagarajan et al. to reduce the chip size and improve the device's efficiency, as shown by Saito et al.

Response to Arguments

Applicant's arguments with respect to claims 9 and 25 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

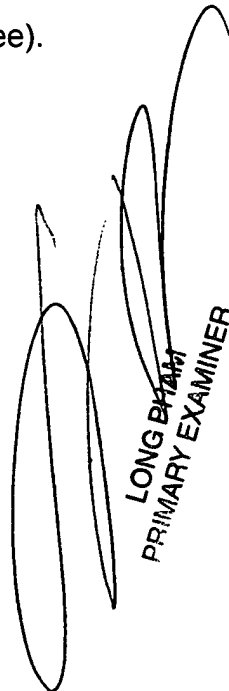
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DiLinh Nguyen whose telephone number is (571) 272-1712. The examiner can normally be reached on 8:00AM - 6:00PM (M-F).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (571) 272-1705. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DLN



LONG B. TRAN
PRIMARY EXAMINER